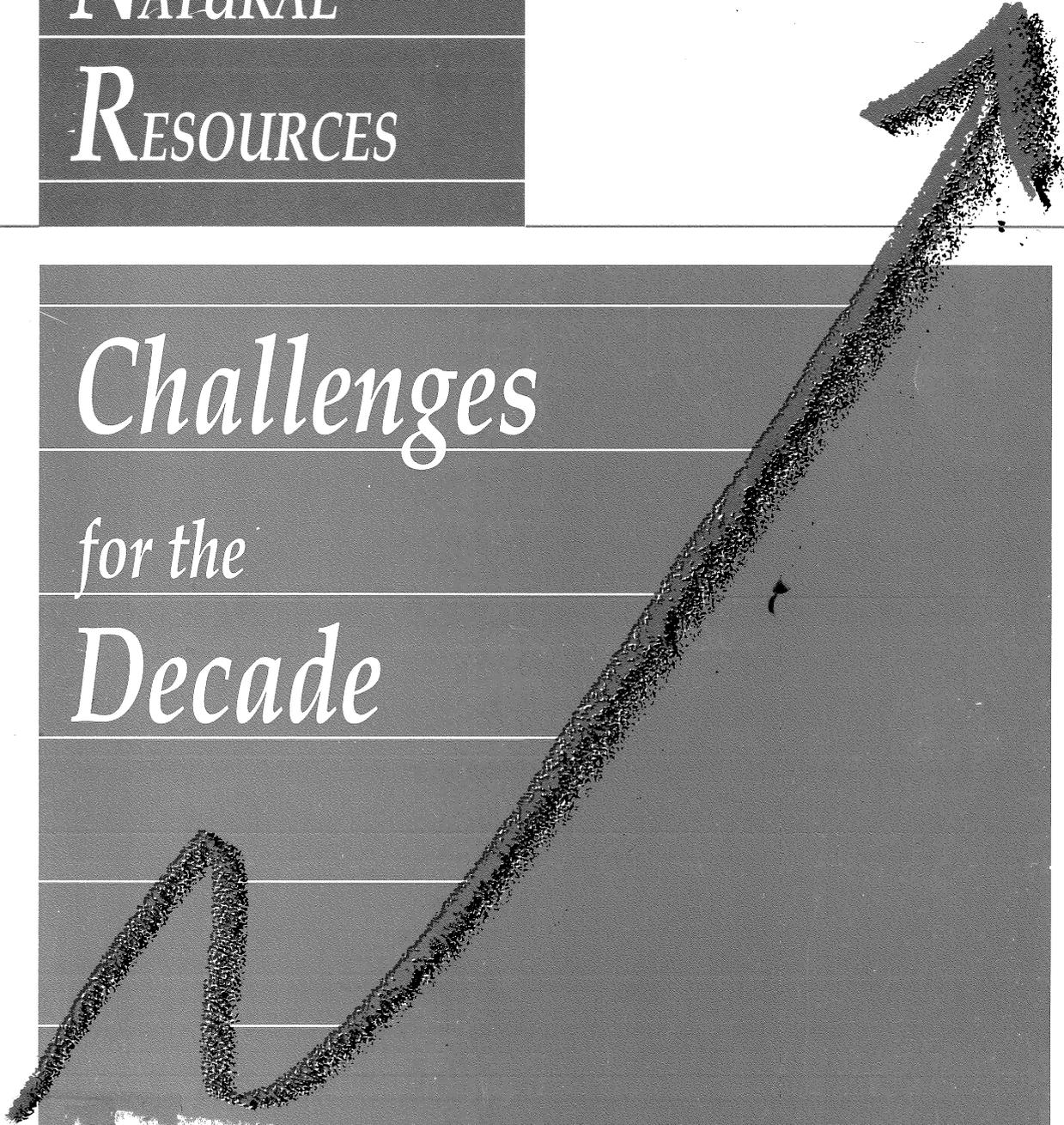


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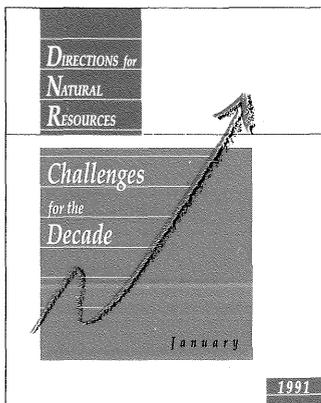
Challenges
for the
Decade



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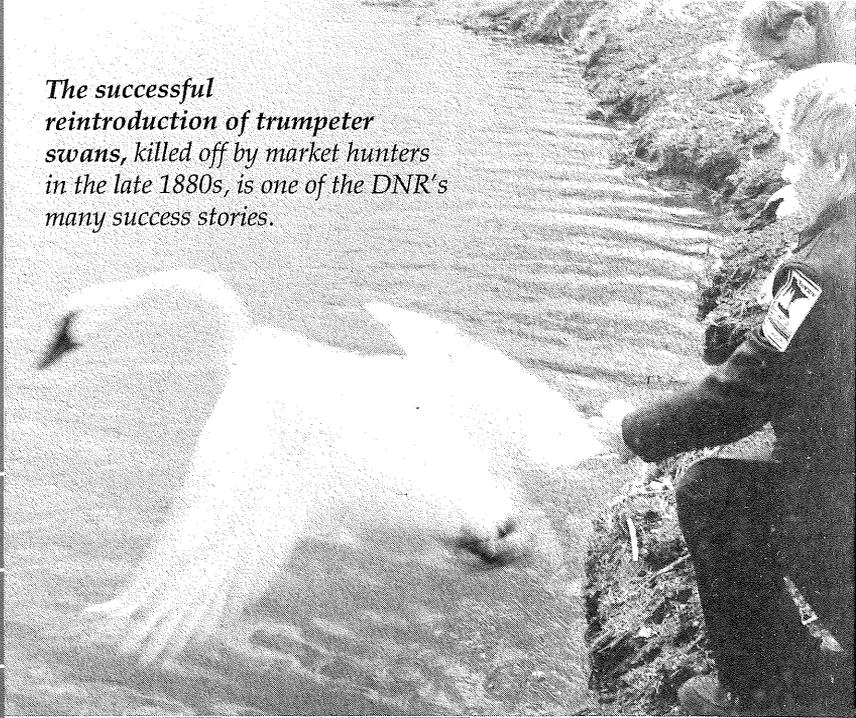
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CHALLENGES FOR THE DECADE:

DISCOVERING NEW OPPORTUNITIES

The successful reintroduction of trumpeter swans, killed off by market hunters in the late 1880s, is one of the DNR's many success stories.



To preserve, protect and enhance Minnesota's natural resource heritage in order to benefit the environment, economy, and quality of life of all Minnesotans, present and future.

—DNR mission statement

When Rachel Carson's book *Silent Spring* alerted the world to the dangers of DDT in 1962, the peregrine falcon was already a victim, having nearly vanished from the eastern United States. Today, because of Minnesota's restoration efforts, these magnificent birds once again nest in the state, thriving in areas, such as the rooftops of big cities, where they never lived before.

Twenty years ago, Minnesota had so few deer that officials closed the hunting season. Since then, the Department of Natural Resources made continual improvements in game management, and last year state hunters bagged more than 165,000 white-tails—the fourth record in eight years.

Thanks to new technology and sound management of state forests, the state's wood products industry is growing fast and is more diverse than ever. It employs 55,000, and each year generates \$1.9 billion in wages, \$4.9 billion in sales of primary and secondary products, and nearly \$150 million for the state treasury.

Today the DNR is using catch-and-release regulations, habitat improvement and genetically based stocking to restore fisher-

ies that were in trouble a generation ago. Examples are naturally reproducing stream trout, a growing lake trout population in Lake Superior, and fast-growing walleyes in lakes once plagued by winterkill.

Through innovative management, Minnesotans have turned challenges into opportunities. The DNR is proud of its role in these success stories.

Yet Minnesota is faced with serious new challenges—worsening environmental problems, a growing population and a changing demand for resources.

To meet these challenges, the DNR in 1984 began a strategic planning process. Every two years, the agency identifies issues that will affect resource management and lays out strategies to deal with them.

The results of the most recent planning cycle are presented in this report, *Directions for Natural Resources: Challenges for the Decade*. The report covers three main topics in the following order:

1. The issues challenging the DNR in the decade ahead.
2. The general strategies the DNR will follow and specific actions it will take to deal with these challenges.
3. The DNR's accomplishments during the past two years.

By planning ahead and periodically evaluating our achievements, we Minnesotans can continue to turn some of our most pressing challenges into new opportunities.

MN DNR

SCANNING THE HORIZON:

TRENDS & STRATEGIC ISSUES

Airplanes, radios, computers, satellite imaging and other modern technology are wonderful aids to natural resource management. Unfortunately, however, the most useful device of all doesn't exist: a reliable crystal ball. If land managers could foresee environmental trends and predict the results of their actions, they could do a far better job of resource management.

Lacking a crystal ball, the DNR consulted its own employees, personnel from other agencies and private companies, and members of conservation organizations. This group identified general environmental trends and emerging issues. DNR employees continued to refine the list, identifying

the major issues that are likely to confront the department during the next decade. The following are among the most important:

- Pollution and development are causing natural biological systems, such as wetlands, native prairies, forests, lakes and streams, to deteriorate. Species diversity is declining, as erosion, sedimentation and flooding increase. The result will be a loss of economic, aesthetic and recreational opportunities for Minnesotans.
- Broad-based problems—such as deteriorating water quality caused by poor land-use practices throughout entire watersheds—are proving difficult to combat. Land management agencies have traditionally directed their efforts to individual units, such as parks and wildlife management areas. As a result, agencies working individually haven't been able to solve these broad-based problems.
- The demand for forest products is growing, providing new plants, jobs and good prices for state-managed timber resources. At the same time, however, land managers must determine a sustainable level of use to protect the long-term productivity of these forests.
- The demand for outdoor recreation is growing even faster than the population. The development of recreation areas and facilities hasn't kept pace. Furthermore, the variety of recreation—from jet-skiing



The destruction of wetlands causes widespread problems, such as flooding, stream siltation and loss of wildlife habitat.



Will our children be able to fish? In the years ahead, angling and other outdoor recreation will depend not only on facilities such as public accesses and trails, but also on healthy terrestrial and aquatic environments, such as streams, wetlands, forests and prairies.

to fly-fishing—is greater than ever, and some new uses may require special facilities. Otherwise, they may cause conflicts with other uses.

- The DNR is taking on new roles. The public expects better service and a greater variety of services. Budgets are tight. The demographic characteristics of the work force are changing. As a result of these trends, the DNR must constantly improve as an organization to continue to do its job effectively and economically.

Once these and other issues were identified, DNR staff members developed broad strategies and specific actions to deal with

them. These strategies and actions are detailed in the following pages.

Because *Directions* describes the DNR's response to emerging issues, it emphasizes new approaches in management. Many long-standing duties—even those as basic as conducting timber sales, operating state parks, and setting game and fish seasons—are mentioned only briefly, though they will receive high priority.

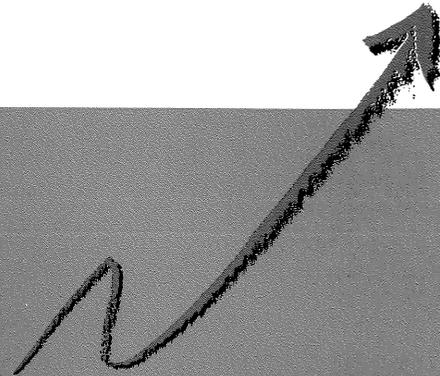
In all these matters the DNR has asked citizens for comments and advice, and will continue to do so. Only with public support can the DNR do its primary job of providing for wise use of resources while protecting the environment.

MEETING THE CHALLENGE:

STRATEGIES

&

ACTIONS



STRATEGY

We will protect and restore the
health and productivity of the
state's natural biological
systems.

Resource management means more than stocking fish and planting trees. The first order of business is making sure the land and water, and the plants and animals that live there, thrive as a whole. Conservationist Aldo Leopold described good management this way: "A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise."

The DNR has made restoring the health and productivity of the state's natural systems a top priority. It will pursue that strategy through the following actions:

- **Halt the loss of wetlands** to protect water quality and provide wildlife habitat. Support tough legislation and undertake more critical review of projects affecting wetlands. Restore wetlands through the North American Waterfowl Management Plan. Make greater use of conservation officers in the enforcement of wetland



Forest inventories aid planning and management decisions that lead to continued forest diversity and productivity.

Using radio telemetry to find her quarry, a biologist conducts a census of Blanding's turtles to determine the effects of development on the nesting success of these uncommon reptiles.



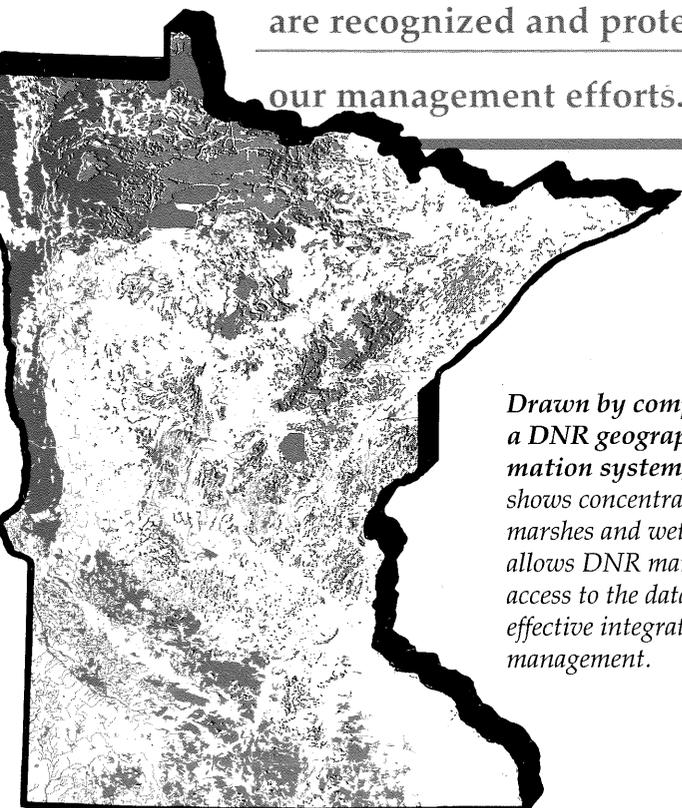
Dan Ruda

laws. Update national wetlands inventory, protected waters inventory, and watershed maps.

- **Maintain biodiversity** by preserving or restoring tracts of original vegetation, such as native prairie and old-growth forest. Gather ecological data on rare species and sensitive habitats, and establish areas to protect them. Continue to use species diversity as a criterion in environmental review.
- **Control harmful exotic plants and animals** by supporting legislation restricting their introduction.
- **Improve the health of community and private forests** by increasing technical and financial aid for community forest management. Promote tree and shrub planting. Match federal funds to control oak wilt.
- **Maintain forest diversity** while producing timber by conducting research and using appropriate harvest strategies. Use "best management practices" to protect water quality. Improve forest inventory data to aid planning and management decisions.
- **Reduce contaminants** entering the environment by researching the spread and effect of pesticides in natural systems. Work with the state Pollution Control Agency to write a pesticide-use guideline and monitor spraying. Cooperate with the PCA and U.S. Environmental Protection Agency on clean air and water programs.
- **Track surface water pollution** by measuring contaminants in aquatic ecosystems and monitoring the health of fish and wildlife. Work with other groups to create a river watch program.
- **Prevent contamination of ground water** by continuing work on the county geologic atlas and ground water sensitivity mapping. These tools will help the DNR make decisions on ground water use.
- **Continue to monitor ground and surface water quantity** through observation wells and river and lake gauges.
- **Protect water quality in mining areas** by developing methods to prevent acid mine drainage. Implement federal regulations on existing taconite mining.
- **Reestablish dedicated sources of funds** for a more stable management budget.



We will employ integrated
resource management
approaches to ensure that the
unique values of all resources
are recognized and protected in
our management efforts.



Drawn by computer using a DNR geographic information system, this map shows concentrations of lakes, marshes and wet soils. GIS allows DNR managers quick access to the data needed for effective integrated resource management.

Because natural systems are complicated and interrelated, local land-use decisions can have far-reaching and often unexpected results.

For example, the decision to build a shopping mall can lead to the destruction of a trout fishery miles away. Paving the site and widening streets for added traffic increases runoff to a nearby brook. The stream floods downstream. Sheer banks erode, deep holes and spawning riffles fill in with silt. Rooted water weeds disappear because of fluctuating water levels. Water temperature increases, oxygen decreases. The trout and the stream die.

As this simple example suggests, resources are related, or integrated. Management must be integrated as well. That means decision makers must cooperate with other agencies and consider the effects of their actions on many different resources, even those outside their own management units.

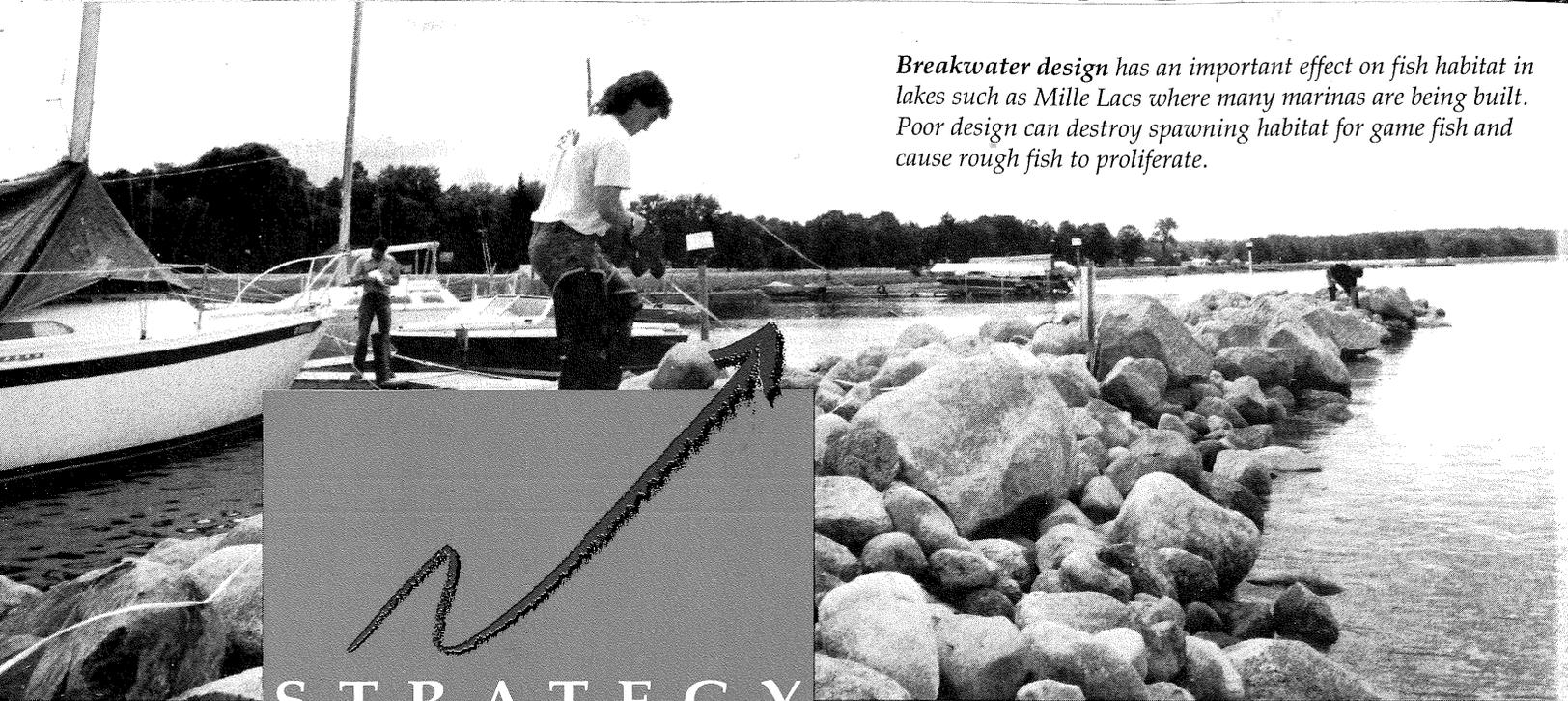
Integrated management will become essential in the years ahead. It is a strategy the DNR will pursue in the following ways:

- **Establish an integrated resource management program** to ensure cooperation among resource managers in addressing complex environmental problems.
- **Develop integrated resource management plans** for watersheds to achieve such goals as improving water quality and maintaining species diversity.

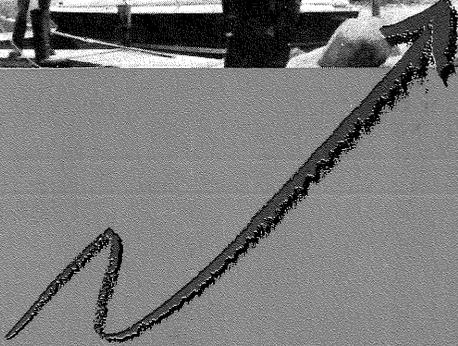


- **Obtain greater funding for RIM** (Reinvest in Minnesota), a versatile program that protects and enhances fish and wildlife habitat through development projects, easements and land acquisition.
- **Employ interdisciplinary management of individual units.** For example, the Divisions of Forestry, Parks and Recreation, and Fish and Wildlife are working together to manage vegetation and wildlife in Itasca State Park.
- **Protect aquatic habitat in rivers** affected by dams or water appropriation through the establishment of instream-flow requirements. These standards will ensure that artificial water fluctuations do not kill significant numbers of fish and other stream organisms.
- **Balance timber harvesting with other forest uses** by setting up a Minnesota Forestry Advisory Committee as a forum for many interests. Develop integrated resource management plans for state forest lands. Apply “visual management guidelines” to reduce the aesthetic impact of logging on recreation and tourism.
- **Improve coordination** among disciplines and agencies by giving all better access to data through a comprehensive geographic information system. GIS will store and retrieve information on all subjects, including forestry, fish and wildlife, lands, waters, and recreation.
- **Strengthen enforcement** of conservation laws by working out cooperative enforcement agreements with other agencies, such as the PCA, to ensure enforcement is impartial and consistent. Involve the Division of Enforcement in early stages of program planning to help avoid law enforcement problems later.
- **Improve interdisciplinary coordination** within the DNR by stationing additional Minerals Division staff in the regions.

Old-growth forests will receive greater protection in the future as forest managers balance timber harvesting with other purposes.



Breakwater design has an important effect on fish habitat in lakes such as Mille Lacs where many marinas are being built. Poor design can destroy spawning habitat for game fish and cause rough fish to proliferate.



STRATEGY

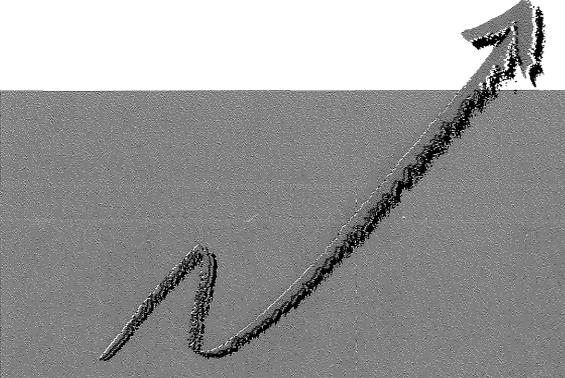
We will ensure natural resource products and services are available to meet the needs of society, consistent with our commitment to sound environmental management.

Dan Ruda

Our jobs and lifestyles depend on natural resources. Many of these resources come from Minnesota, including timber, pulp, iron ore and building stone. Fishing, hunting and other recreational activities require natural resources of another kind—land, fish and wildlife.

Making these resources available while protecting the environment has been a long-standing strategy of the DNR and remains so today. To achieve this balance, the DNR will take the following actions:

- **Continue to provide citizens opportunities to get involved** in decisions affecting natural resource use and protection.
- **Sustain the yield of forest products** by improving management in state forests and giving more advice and aid to nonindustrial private forest owners.
- **Protect game fish habitat** in and near marinas by developing design criteria for breakwaters that will protect harbors without increasing sedimentation.
- **Aid public safety** by developing North Shore harbors of refuge. Continue dam reconstruction to prevent failure.
- **Ensure mining areas are restored** by completing nonferrous metallic minerals reclamation rules.
- **Encourage industrial minerals production** by establishing procedures for leasing state land to extract those materials, as well as natural gas and petroleum.



STRATEGY

We will improve our ability
to manage conflicts over use
and protection of the state's
resources.

Disagreements over the use of land, water and other resources are inevitable. The success of resource management often depends on how well these conflicts are resolved. In the coming years, the DNR will use the following methods to resolve conflicts:

- **Expand the alternative dispute resolution program** to address management and regulatory disputes.
- **Head off conflicts** by staying in touch with interest groups and involving them in rule making, as the DNR did in revising shoreland management regulations.
- **Help resolve issues over timber harvesting** by assisting in the preparation of the generic environmental impact statement on timber harvesting and management.
- **Continue efforts to resolve Indian treaty rights issues.**
- **Minimize environmental impacts** through more thorough interdisciplinary



Public concerns over the effects of increasing timber harvest will be addressed in a generic environmental impact statement on logging and forest management.

- and interagency review of development projects.
- **Resolve disputes outside of court** when possible to encourage cooperation and reduce costs.



STRATEGY

**We will expand our planning
and coordination activities.**

Dan Ruda



Volunteer cleanup efforts coordinated by the DNR have removed hundreds of tons of refuse from Minnesota's streams.

Planning allows more effective and efficient use of money, facilities and labor. In the future, the DNR will rely more than ever on planning, and on coordination within the DNR and with groups outside the department. Planning and coordinating actions will include the following:

- **Continue strategic planning** to identify trends that will affect resource management. Develop appropriate strategies and actions to address important issues.
- **Develop communications and promotional plans** to ensure DNR programs address the needs of their customers.
- **Continue to use division coordinating committees** to plan efforts among DNR units and with other agencies.
- **Continue to unify department planning** by integrating strategic planning with regional plans and the operational plans of the divisions.
- **Develop lake and river management plans with groups** such as counties, lake associations and watershed improvement districts to improve land-use and fish management.
- **Anticipate future needs for recreation, utilities and transportation corridors** by working with other agencies to acquire abandoned railroad rights of way.
- **Continue to encourage and coordinate volunteer activities**, such as the Clean Rivers Program, which enlists volunteers to remove trash from streams.



Dan Rude

STRATEGY

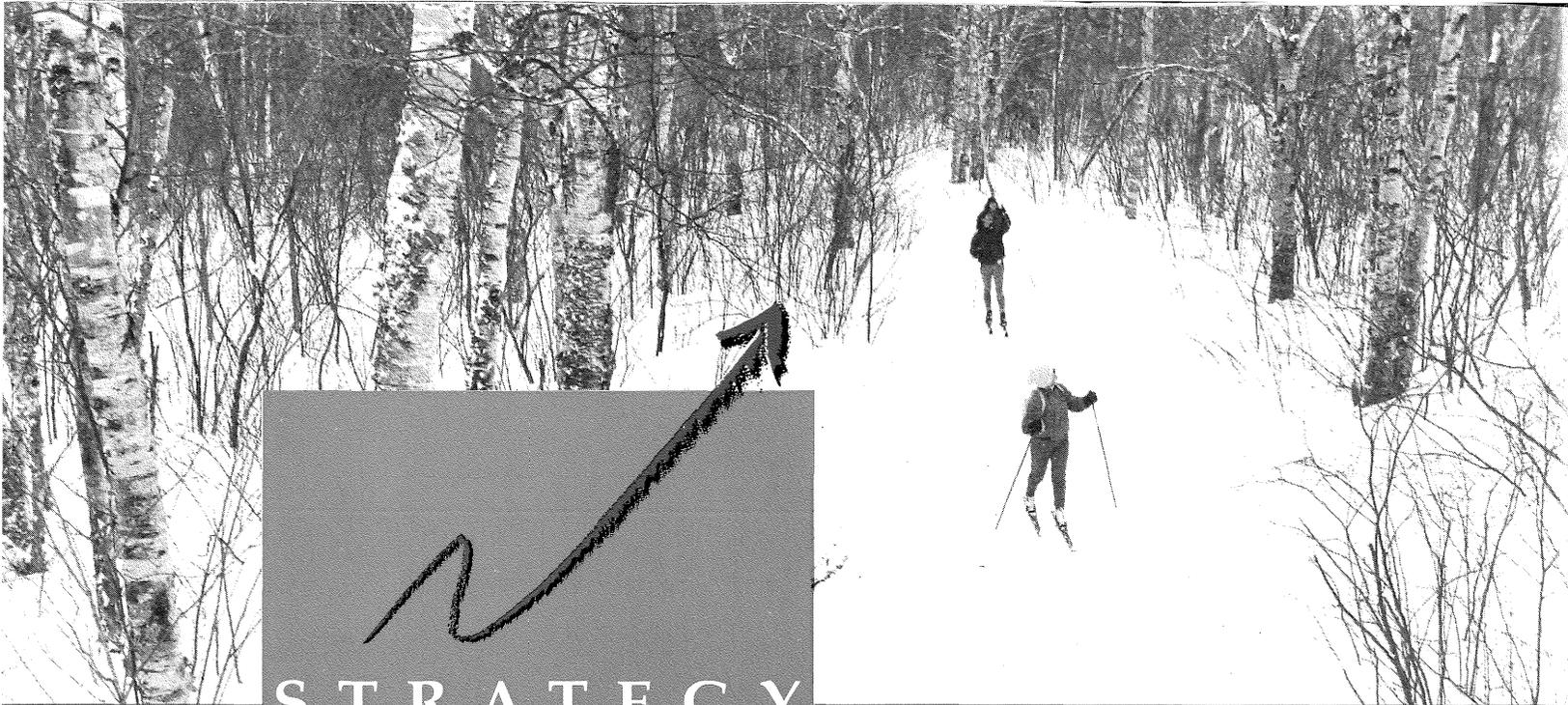
We will place more emphasis on managing resources in and near rapidly growing urban and suburban areas.

The state's most pressing needs for resource management often arise where the population is growing fastest, usually the outlying suburbs of large cities. As residential and industrial development spreads into wild areas, wildlife habitat is lost. Water quality deteriorates. The demand for recreational lands increases, even as natural areas for recreation are built up.

Because of these trends, the DNR will emphasize management in rapidly developing areas through the following actions:

- **Continue innovative fish management** to provide varied angling opportunities despite heavy fishing pressure.
- **Develop more recreational trails** and public accesses in developing areas.
- **Quickly identify and protect significant natural areas** near cities for their scientific, educational and recreational values.
- **Slow the growth in water use** by working with localities on conservation plans.
- **Reduce flood damage** by helping communities develop comprehensive flood-fight emergency plans.
- **Protect wetlands** by sharing information through a metro-area wetlands forum.
- **Emphasize law enforcement** near cities to prevent recreation conflicts and illegal wetland drainage.
- **Protect and enhance forests in suburban areas** through increased community forestry and pest management assistance.

The DNR will provide trails and other recreational facilities in rapidly growing urban and suburban areas.

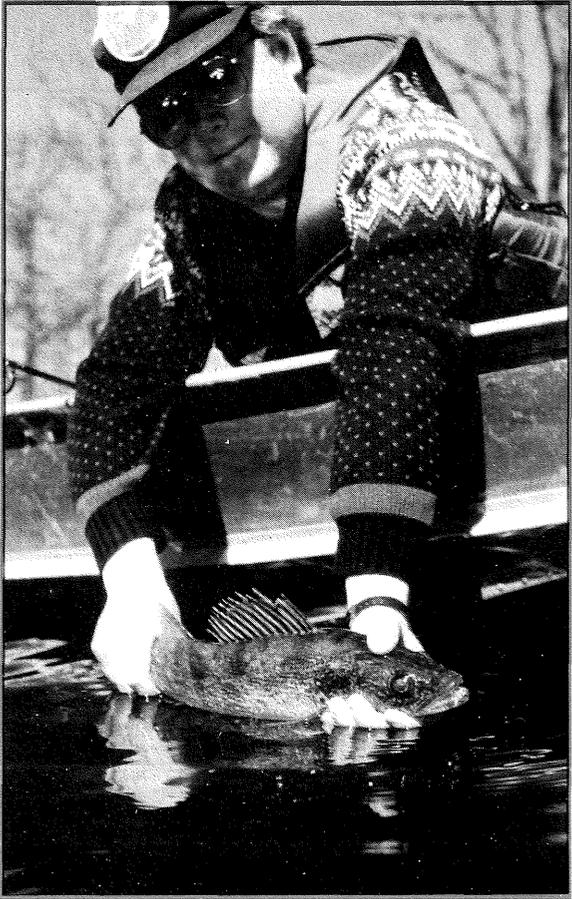


Dan Ruda

STRATEGY

We will improve service to recreation visitors.

Anglers, cross-country skiers and others who rely on public land and resources for recreation are among the DNR's most numerous clients. Serving these visitors has become one of the department's most important jobs.



Larry Duke

People engage in more kinds of recreational activities than ever before, and the sheer number of visitors to state recreation areas has grown much faster than the state's population. As a result, meeting recreation needs has become one of the DNR's most important jobs.

The DNR will improve its service to these visitors through the following actions:

- **Give high priority to habitat improvement** in fish and wildlife management. In fisheries, use special regulations to provide a variety of angling opportunities, including trophy fishing.
- **Acquire recreation land**, especially inholdings in state parks and land in Richard J. Dorer Memorial Hardwood Forest. Establish new recreation areas, such as parks, trails and wildlife management areas when possible.
- **Protect natural communities** and remnants of original vegetation in state parks, or restore these kinds of areas where possible. Take stock of unique natural and historical resources in each park.
- **Rehabilitate buildings and other facilities** in parks, many of which have historic value. Devote more effort to maintaining trails, public accesses and fishing piers.
- **Provide for new forms of recreation**, such as off-road use, which may prove damaging and controversial if areas or facilities aren't provided.



We will strive for quality
and excellence in
management.

To survive, an organization must operate efficiently, provide good products and services, and be responsive to its customers. In those respects, the DNR is like any business. And like other businesses, the department is always looking for ways to improve. To accomplish that, the department will take the following actions:

- **Strengthen quality initiatives** such as marketing, training, innovation and public responsiveness programs to encourage creative approaches.
- **Increase efficiency in land management** by acquiring key parcels through purchase or land exchange.
- **Continue to improve the acquisition process** so the DNR can buy land from willing sellers when an opportunity arises.
- **Increase timber revenue and ensure fairness** by using auction timber sales rather than informal sales.
- **Improve facilities management** through better space planning, capital improvement planning, and maintenance.
- **Improve public safety and protect resources** through better compliance with regulations governing recreation and natural resources. Accomplish this through public education, strong enforcement and by designing clear, enforceable regulations.



The DNR is strengthening quality initiatives such as marketing and training programs to operate more efficiently and deliver better service to the public.

By expanding the Minnesota Conservation Corps program, the DNR can give youth opportunities to explore the natural world while building self-confidence and job skills.



Peter Hark



We will increase our
investment in the DNR
human resource.

Because an organization is only as good as the people who work there, the DNR will continue to improve its work force. The following are some of the specific actions the DNR will take:

- **Provide essential information about employees, applicants, and personnel policies and procedures** by setting up a comprehensive human resources information system.
- **Fill DNR positions more quickly** by conducting required examinations in house rather than through a central state agency. Aggressively recruit qualified employees, especially women, minorities and disabled persons.
- **Improve employee training opportunities.** Areas where training is especially important are employee management, work safety and new technology.
- **Increase opportunities for youth** to explore careers in natural resources by expanding the Minnesota Conservation Corps, and the Youth in Natural Resources program to include other minorities in addition to Native Americans.
- **Continue to provide employee motivation and job enrichment programs** such as mobility assignments, and rewards and recognition.



Training can help DNR employees work more productively.



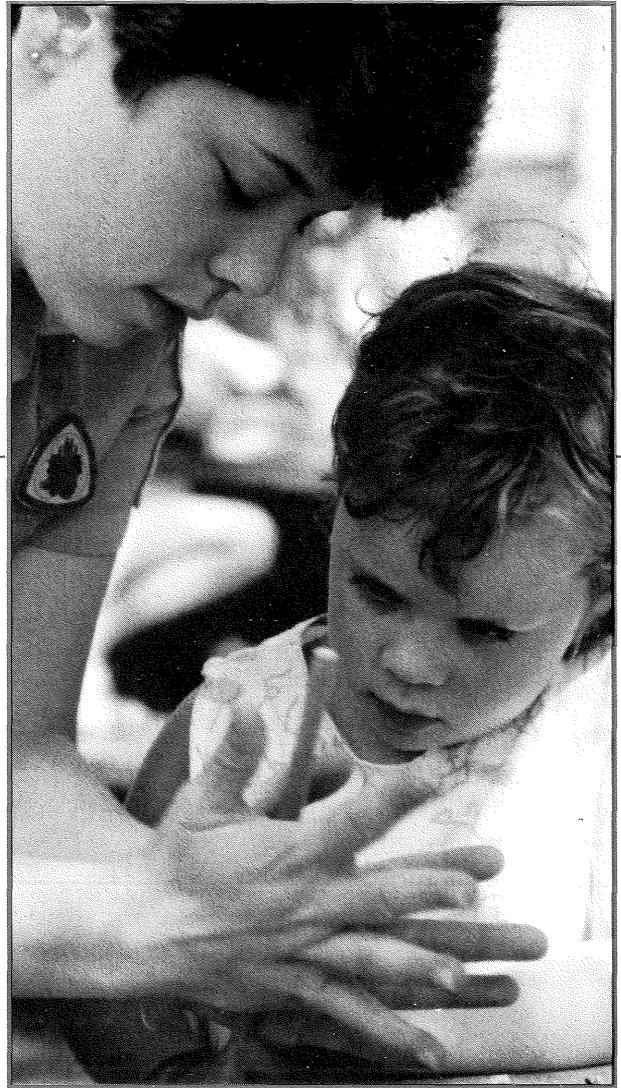
STRATEGY

We will renew our
commitment to providing
quality environmental
education and interpretive
options for all Minnesotans.

The most effective resource managers are informed citizens. The collective actions of millions of Minnesotans have far more impact than the work of a few thousand DNR employees. The more knowledgeable those citizens are about the environment, the better the outlook for state resources. Moreover, the success of DNR conservation programs depends on public support.

To encourage that support and provide information the public needs, the DNR will take the following actions:

- **Add and improve interpretive programs** at selected state parks.
- **Provide informative displays**, maps and other handouts along trails and at public accesses and fish and wildlife areas.
- **Continue to produce brochures** on DNR programs.



Larry Duke

Environmental education in state parks introduces a new generation to the outdoors and to natural resources issues.

- **Distribute curricula such as Project Learning Tree and Project Wild**, and publish new materials for students to use in schools to learn more about the environment and natural resources industries.
- **Expand MinnAqua**, the department's aquatic education program.
- **Develop a minerals community relations committee** to help communities evaluate the risks and benefits of mining.
- **Produce video press releases** and public service announcements to encourage television coverage of DNR activities.
- **Provide more environmental education opportunities** to Minnesota Conservation Corps participants.

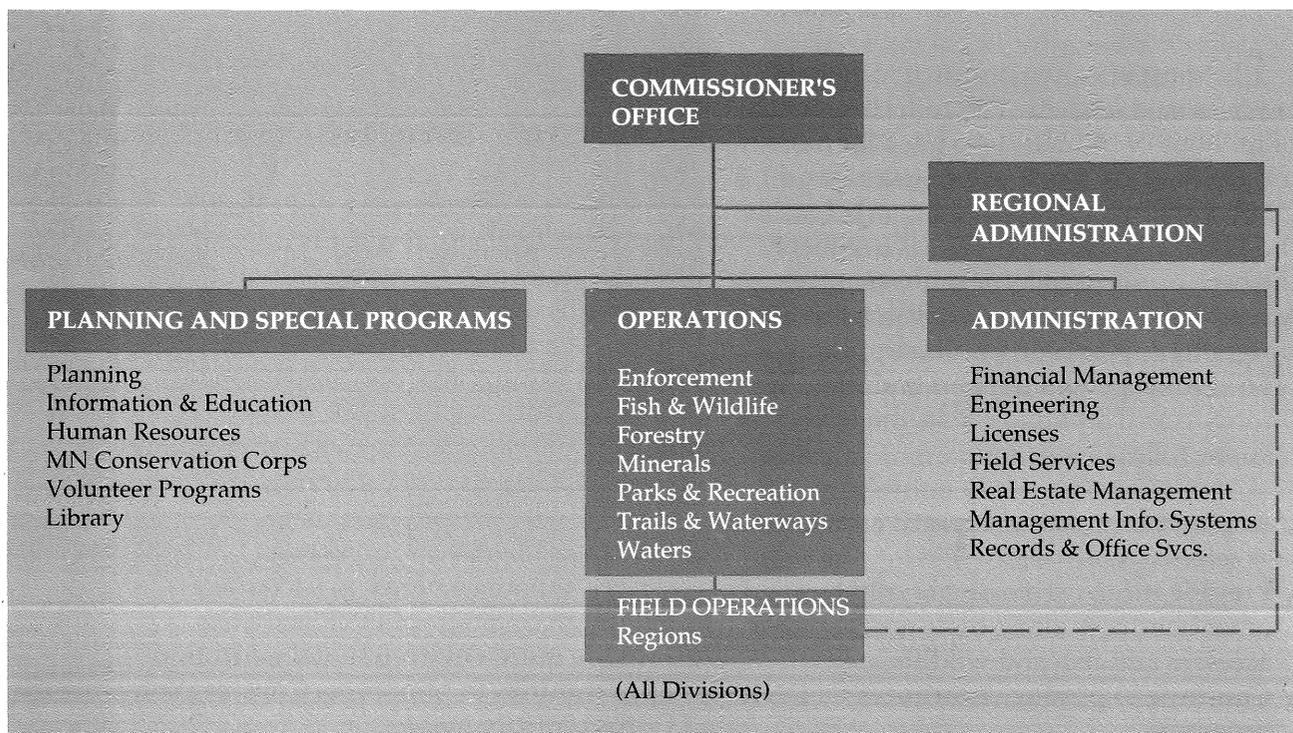
FOLLOWING THROUGH: DEPARTMENT ACCOMPLISHMENTS 1989 – 1990

Planning should direct money, effort and facilities where they're most needed and do the most good. That is, planning should lead to real accomplishments.

The critical link between plans and results is effective organization. The building blocks of the DNR's organization are the divisions: Enforcement, Fish and Wildlife, Forestry, Minerals, Parks

and Recreation, Trails and Waterways, and Waters. The divisions are supported in their work by several administrative bureaus. The result is an organization that can turn planning into action.

The following pages detail some of the most prominent accomplishments of the DNR's divisions and bureaus during the last two years.



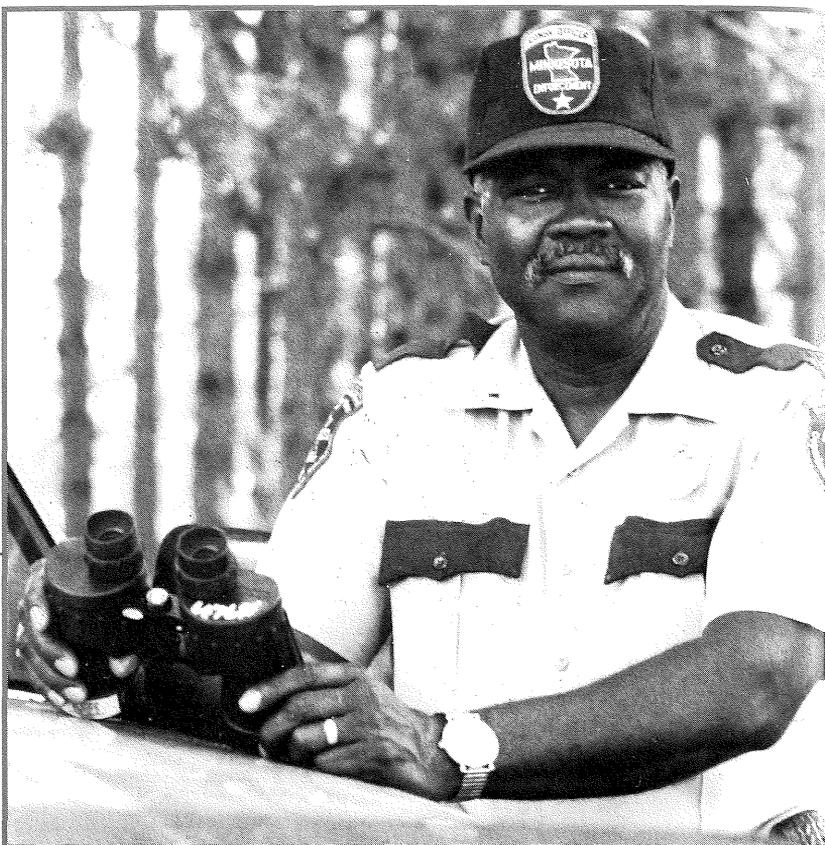


Division of Enforcement

Laws protecting natural resources are effective only if they're enforced. That's been the job of the Division of Enforcement. Yet the simple days of the old-time "game warden" are gone forever. During the next decade, conservation officers' duties will include enforcing not only game and fish laws, but also regulations concerning wetlands, outdoor recreation and solid waste disposal. In keeping with the greater demands on natural resources law enforcement, the division has done the following during the past two years:

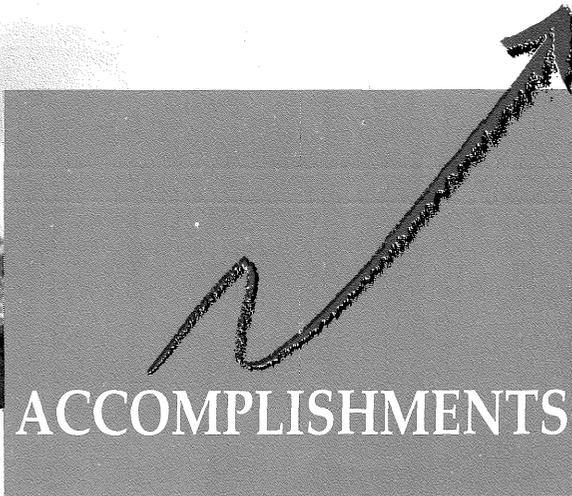
- Stepped up efforts to arrest intoxicated motorboat and snowmobile operators.
- Improved record keeping to more quickly retrieve information on individual cases and cut down paperwork for supervisors.
- Strengthened enforcement through cooperative agreements with the U.S. Fish and Wildlife Service and U.S. Forest Service.
- Surveyed Minnesotans to learn about public attitudes toward enforcement. By pinpointing areas where the public feels it is not adequately served, the division can make improvements.
- Began a GIS survey to match workload indicators to conservation officer stations. These indicators—such as fishing pres-
- sure, hunting pressure, trail activity, population, and percentage of population under 16—will help determine where officers should be assigned, where new stations should be opened and which should be closed.
- Continued to upgrade officers' training in areas of public responsiveness, environmental issues and litigation.
- Made safer and more efficient use of department aircraft by establishing the chief pilot position.
- Focused efforts on waterfowl hunters to protect dwindling numbers of ducks and geese. In 1989 Minnesota made more arrests for violations of waterfowl laws than any other state in the Mississippi Flyway.
- Cracked down on illegal road hunting by initiating legislation allowing more effective use of roadside deer decoys.
- Taught safe, ethical behavior in the field to thousands of hunters and operators of snowmobiles and all-terrain vehicles.

Larry Duke



Conservation officers have more duties than ever. Once responsible solely for game and fish laws, they now enforce laws regulating wetland drainage, solid waste disposal and boating while intoxicated.

RIM Critical Habitat Match has encouraged millions of dollars in donations that have benefited game and nongame species alike.



Division of Fish & Wildlife

The Division of Fish and Wildlife has many “clients”: 2 million anglers, 700,000 hunters and trappers, and countless thousands who simply like to watch wildlife. And everyone benefits from the division’s efforts to make land and water more habitable for all life—including our own.

During the past biennium, the division launched new programs. It also continued many long-standing activities, such as improving fish and wildlife habitat, setting fish and game seasons and limits, protecting unique plant communities, and conducting research. Among its specific accomplishments are the following:

- Worked with angling groups to encourage catch-and-release fishing and institute special regulations on many streams and lakes to improve fishing. To formulate these regulations and measure their effectiveness, the division completed 5,000 lake and stream surveys. It also developed 2,600 lake management plans directing fisheries management.
- Improved 35 miles of trout stream habitat.
- Set up MinnAqua, a program to teach children about lake and stream environments and their protection.
- Helped the PCA set a statewide deposition standard for acid rain, which is used to limit sulfur dioxide emissions.
- Has built, with taxpayer contributions, the Nongame Wildlife Program into the second largest in the country. That program has reintroduced the peregrine, trumpeter swan and burrowing owl.
- Established eight scientific and natural areas to protect native prairie, old-growth forest and several endangered species.
- Arranged 10 land donations totaling 748 acres through RIM (Reinvest in Minnesota) Critical Habitat Match.
- Acquired 49 wildlife areas (3,807 acres).
- Reached goals for the number of deer in most deer management units.
- Increased hunting opportunities through the wild turkey relocation program.
- Improved waterfowl habitat management by instituting the North American Waterfowl Management Plan and accelerating the shallow-lake management program.
- Established the Minnesota County Biological Survey to systematically gather data on rare species and threatened natural habitats.
- Finished a long-range plan for fish and wildlife management.
- Expanded environmental review to limit the damage to habitat by development.
- Began work on a program to control exotic species, such as purple loosestrife and Eurasian water milfoil, through education, research and eradication.

DIXPIX

A DNR forester uses an increment borer to determine the age of a tree, an important step in managing the state's 4.5 million acres of forest land.



ACCOMPLISHMENTS

Division of Forestry

State forests are one of Minnesota's greatest resources, taking in the oak-covered hills of the southeast, the mixed hardwoods of central Minnesota, and the aspen and spruce woods of the north. Managing these vast and diverse lands is the job of the Division of Forestry, which administers more than 4.5 million acres. The division also provides wildfire protection throughout the state and promotes improved forest management on county, community and private lands.

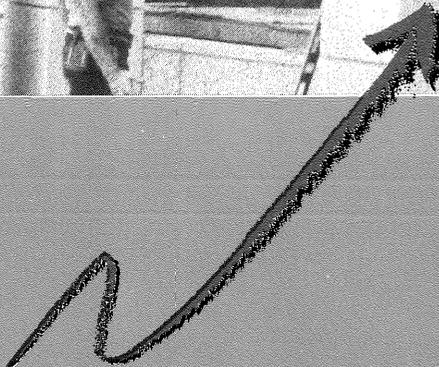
State forests are managed not only for timber, but also for wildlife habitat and public recreation. This multiple-use approach increases the value of the forests to the public.

Among the division's accomplishments during the past two years are the following:

- Promoted environmental awareness by sponsoring last April's Forestry Fair, attended by more than 10,000; by organizing more than 60 Project Learning Tree teachers' workshops; and by producing and distributing Arbor Month teacher's guides to Minnesota schools.
- Developed and published best management practices guidelines in cooperation with the U.S. Forest Service, industry and other groups. These procedures will protect water quality.
- Protected 45.5 million acres from wildfire. Published a brochure to help homeowners reduce wildfire danger in areas where homes are built near woodlands.
- Drafted guidelines for the management of old-growth forests in cooperation with the Division of Fish and Wildlife.
- Provided on-site professional forest management assistance to more than 10,000 private forest landowners.
- Reforested more than 20,000 acres of state land by planting and seeding.
- Surveyed users of forest recreation areas to find out if they were satisfied with facilities; 96 percent said their visits met or exceeded expectations. Income from forest recreation facilities has increased 30 percent since 1986.
- Sold 768,400 cords of wood valued at more than \$6 million in fiscal 1990. Timber sales profits are paid to the school trust fund, general fund and counties.
- Salvaged dying elms and improved management of scarce forest resources of the Red River Valley in cooperation with North Dakota and the U.S. Forest Service. The removal of fallen elms reduced logjams and lessened flood damage.



Dan Reich



ACCOMPLISHMENTS

Minnesota dimension stone is building a name for itself in the construction industry.

Philip Pippo

Division of Minerals

Minnesota's mining industry is booming. Taconite plants produce more than 40 million tons of pellets each year and employ nearly 6,000 workers. Industrial minerals such as building stone are a growing part of the state's economy. Companies are exploring for gold, silver and other precious and base metals in much of Minnesota.

It's the job of the Division of Minerals to manage state-owned mineral rights for the benefit of the state's citizens through environmental protection and the sale of state mineral leases. The division also takes the lead in coordinating the state's mineral policy.

The division manages more than 12 million acres of state-owned mineral rights, 3 million acres of peat lands, and surface rights for industrial and construction materials on 3 million acres of state land.

The division can point to the following accomplishments during the last two years:

- Refined a screening process to use in leasing nonferrous mineral rights. The process will identify and protect environmentally sensitive lands, such as the small watersheds flowing into the Boundary Waters Canoe Area Wilderness.
- Awarded, since fall 1988, 340 leases for the exploration of precious and base metals.
- Voluntarily conducted environmental review to determine the likely effects of exploratory drilling under a lake bed.
- Completed environmental review and permitting for a new taconite mine.
- Simulated the process of issuing permits for a hypothetical new gold-mining facility. The exercise, carried out with the help of the PCA, industry and environmental groups, was designed to anticipate problems in the permitting process before the state is asked to provide permits for a real mine.
- Researched methods to reduce acid mine drainage containing heavy metals into lakes and streams. This nationally acclaimed research led to the patenting of an instrument developed by a Minerals staff member to determine the acid properties of rock.

The highest waterfall in the state, Pigeon Falls is the focal point of Grand Portage State Park, Minnesota's newest.



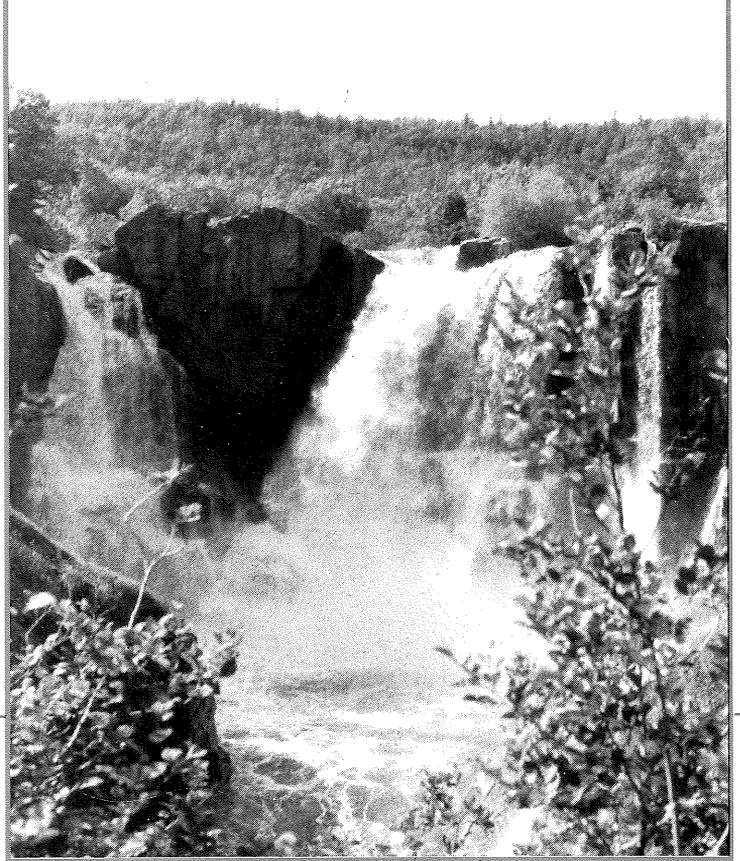
Division of Parks & Recreation

Minnesota's 65 state parks are diverse. At Soudan Mine State Park the chief attractions are a half-mile under the surface. St. Croix State Park, the state's largest, contains 34,000 acres of picturesque streams and forests.

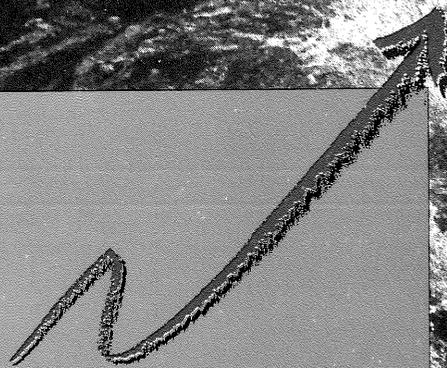
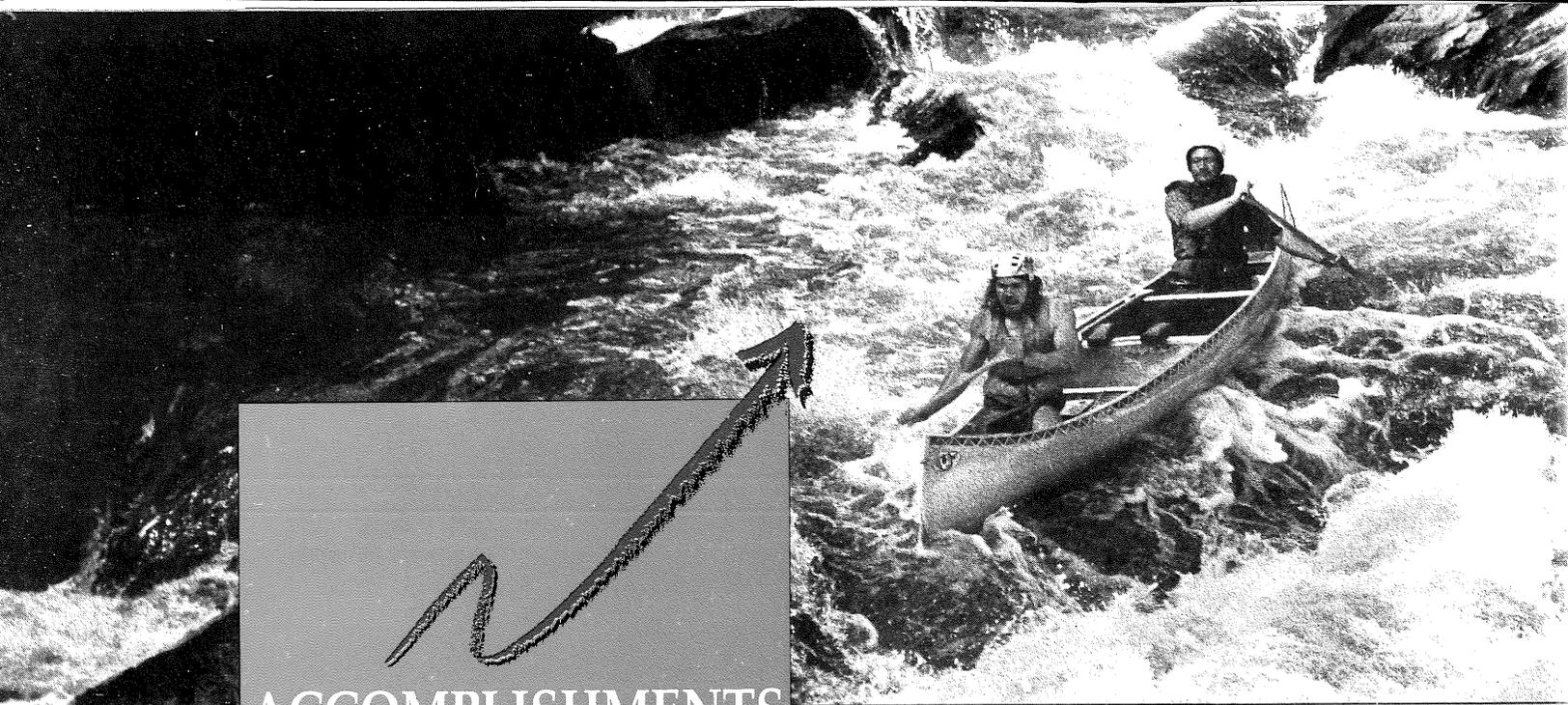
State park visits totaled 8 million in 1989, a 42 percent increase from just three years earlier. Serving these visitors and caring for park resources and facilities are the duties of the Division of Parks and Recreation.

The following are some of the division's specific accomplishments during the past two years:

- Made plans and raised funds for the 1991 state park system centennial celebration.
- Established Grand Portage State Park in 1989 through the cooperation of the Minnesota Parks and Trails Council and the Grand Portage Band of Minnesota Chippewa.
- Established Hill Annex Mine State Park in 1988 with the help of the Iron Range Resources and Rehabilitation Board; continued to provide tours of the facility.
- Renovated Mystery Cave, Minnesota's largest cavern.
- Conducted a two-week continuing education program for recreation professionals in cooperation with the University of Minnesota.
- Held more than 50 special events in 1990, including a variety of daily and multiday festivals and 26 volksmarch events.
- Developed the Youth in Natural Resources program, which provides state park work experience for American Indian youth.
- Acquired four parcels totaling 1,619 acres within state park boundaries.
- Added 500 state park buildings and other structures to the National Register of Historic Places.
- Developed a system of operating standards to ensure acceptable and consistent service at each park.
- Started a program review process to ensure clear communication between central office and regional and park staff.
- Developed a set of traveling exhibits for each region on such topics as Lyme disease and recycling.
- Prepared or updated 33 interpretive displays.
- Restored a 30-acre wetland at Maplewood State Park with private donations and the help of the Division of Fish and Wildlife.
- Opened a new visitors' center at Whitewater State Park.



Lizabeth Lacey



ACCOMPLISHMENTS

Trails & Waterways Unit

Minnesota's network of state recreational trails and waterways reaches every corner of the state. This system includes 1,200 public water accesses, 19 canoe and boating route rivers, and 14,000 miles of trails for hikers, skiers, snowmobilers, horseback riders and others. The Trails and Waterways Unit acquires, plans, develops and maintains these facilities, and administers a grant-in-aid program to local communities for ski, snowmobile and all-terrain vehicle trails.

During the last two years, the unit accomplished the following:

- Developed three segments of the Willard Munger State Trail totaling 8 miles. Two miles were paved using recycled tires—a cooperative project with the PCA and Minnesota Department of Transportation.
- Acquired 17 miles of the Glacial Lakes State Trail between Willmar and Hawick.
- Began negotiations for four railroad grades that are to be acquired and used for trails: Paul Bunyan State Trail between Bemidji and Brainerd, Glacial Lakes State Trail between Hawick and Richmond, and Willard Munger State Trail between Barnum and Carlton and between Wrenshall and Carlton.
- Completed the master plan for the Barnum-Carlton segment of the Willard Munger Trail.
- Developed interpretive displays along the Root River State Trail and two segments of the Willard Munger State Trail.
- Started revising the DNR Trail Plan.
- Maintained an annual promotional network of 2,000 locations where the Great Minnesota Ski Pass could be purchased.
- Began a harbors of refuge plan for the north shore of Lake Superior, in cooperation with local units of government.
- Built 75 public water accesses, redeveloped 15 others, and bought sites for 26 new ones. Installed 109 new concrete boat ramps and replaced 99 others.
- Installed 29 fishing piers in cooperation with local communities.
- Completed six new campsites and portages on canoe and boating route rivers.
- Organized Clean Rivers projects—volunteer clean-up efforts—on more than 500 miles of various rivers in 1990. Volunteers spent nearly 14,000 hours hauling out more than 250 tons of trash. This program won a national Take Pride in America award.

Public accesses on state lakes and rivers have greatly increased the recreational opportunities available to Minnesota residents and visitors.

MN DNR

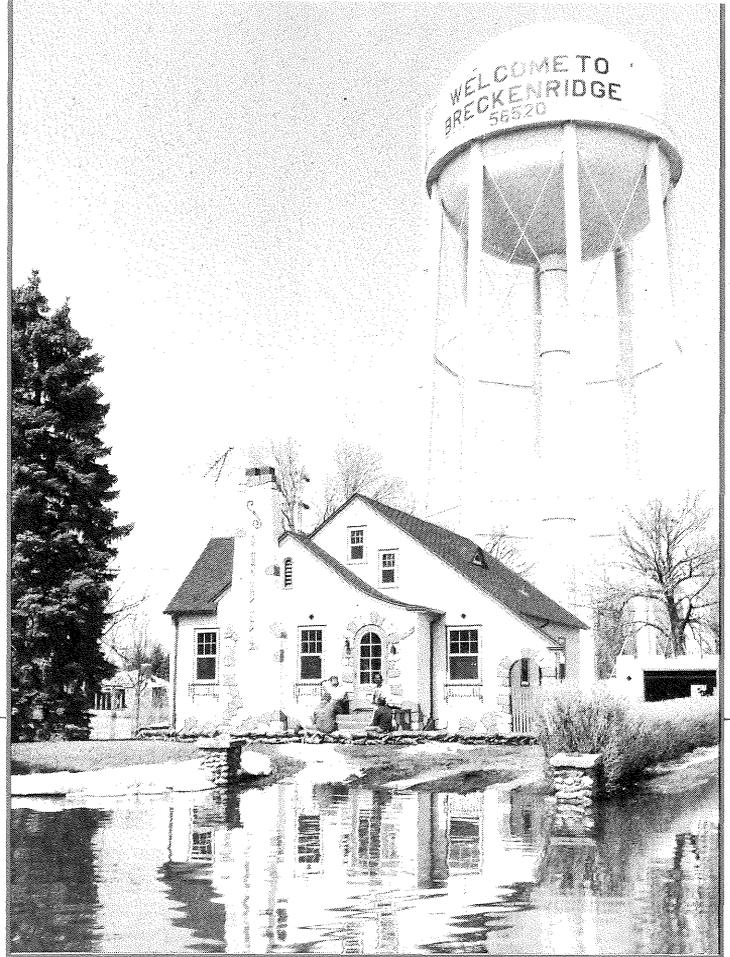
The DNR provided staff and equipment to help residents protect their homes and belongings during the 1989 Red River Flood.



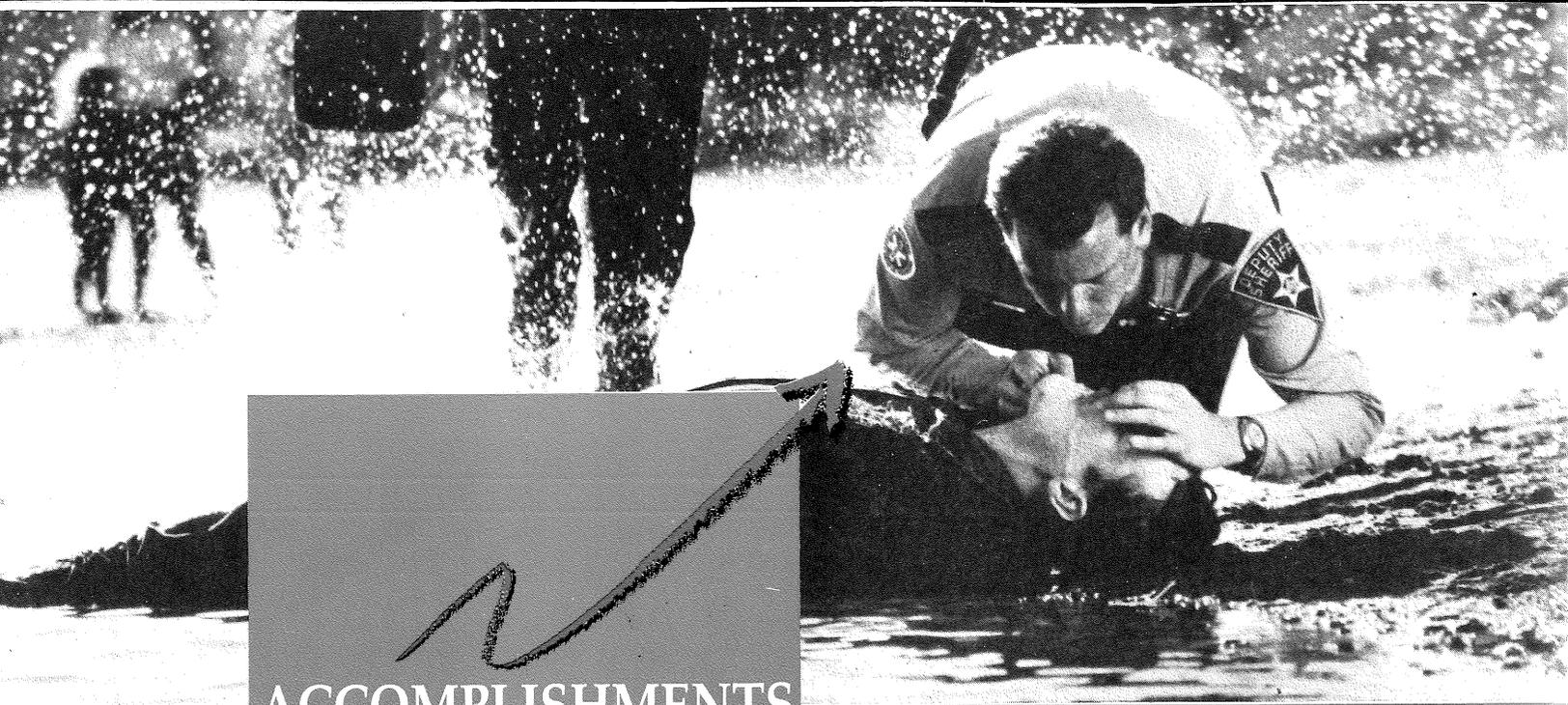
Division of Waters

Minnesota is known for its water—more than 12,000 lakes, 90,000 miles of streams, and nearly 9 million acres of wetlands. Also important are the state's vast ground water resources. Protecting these resources while arbitrating between competing uses is the job of the Division of Waters. The division can point to the following accomplishments during the past two years:

- Developed a drought management plan, which sets up a framework for state, federal, local and private responsibilities during a severe drought, such as the one in 1988.
- Coordinated flood response and helped secure federal disaster aid after flooding in the Red River Valley in 1989.
- Helped prepare major ground water legislation in 1989 that will help the DNR gather more information on the volume and quality of ground water supplies in the state.
- Administered nearly \$8 million in state cost-share grants to fund 80 projects to reduce flood damage. Projects included relocating homes from flood-prone areas and building flood-control structures such as levees and impoundments.
- Revised state shoreland regulations governing waterfront development by working with a committee of many groups, including farmers, conservationists, the forest industry, tourism industry and government officials. New regulations were adopted July 3, 1989.
- Established the Shoreland Management Grant program to help counties and cities upgrade their zoning ordinances.
- Established a good working relationship with communities making up the North Shore Management Board. The board and DNR cooperated on the North Shore Management Plan, which will preserve and enhance the natural features of Lake Superior and the North Shore.
- Protected more than 9,000 acres of wetlands and nearby land through the state Waterbank program. A total of 183 Waterbank projects had been completed by June 30, 1990.
- Developed legislation to eliminate once-through use of ground water for heating and cooling. As a result of the new law, ground water use in the Twin Cities will drop 20 percent.



Dan Ruda



National Safe Boating Council

ACCOMPLISHMENTS

DNR Bureaus

Bureaus give the divisions technical support. Here are some of their accomplishments:

BUREAU OF ENGINEERING

Bid 232 construction projects with a value of \$11 million; finished 350 design projects. Completed land descriptions and boundary surveys for \$7.5 million in acquisition.

BUREAU OF FIELD SERVICES

Produced *DNR Users' Guide to Procurement* to make purchasing easier and ensure compliance with purchasing rules.

BUREAU OF HUMAN RESOURCES

Conducted customer service training for employees in St. Paul and four regions. Improved hiring through delegated classification and examination authority.

BUREAU OF INFORMATION AND EDUCATION

Helped reduce the state's boating death toll through award-winning boating safety efforts. Led DNR marketing efforts by increasing public responsiveness and awareness of customer needs.

BUREAU OF LICENSES

Issued 1.6 million fishing and 800,000 hunting licenses; processed hundreds of thousands of applications for special hunts and watercraft and snowmobile licenses yearly.

BUREAU OF MANAGEMENT INFORMATION SYSTEMS
Finished the LCMR-funded study on using GIS for resource management. Trained a regional GIS coordinator to help DNR field staff make effective use of GIS.

OFFICE OF PLANNING

Administered: department-wide strategic planning; Enforcement, Field Services and environmental education studies; conflict resolution pilot program; and commissioner's office program, reviewing issues in the field.

BUREAU OF REAL ESTATE MANAGEMENT

Certified and paid \$12 million to counties in lieu of taxes on 8.1 million acres of state-administered land. Bought 330 parcels (8,500 acres); completed 64 land exchanges (34,000 acres). Sold 421 leased lakeshore lots valued at \$5.7 million and other surplus land totaling 340 acres valued at \$175,000.

OFFICE OF VOLUNTEER SERVICES

Organized the work of 12,000 volunteers, who donated 270,000 hours valued at nearly \$2 million to DNR programs.

MINNESOTA CONSERVATION CORPS

Provided work to 352 youths and young adults during fiscal year 1990. Projects, valued at more than \$1.7 million, included river cleanup and trail construction.

BUREAU OF FINANCIAL MANAGEMENT

Developed and implemented a department cost code system that also provides more timely accounting information.

A sheriff's deputy tries to breathe life into a drowning victim in a public service announcement the DNR prepared in cooperation with the National Safe Boating Council. Announcements such as this have played a role in reducing the state's boating death toll.

A PROMISE: P LANNING FOR THE FUTURE

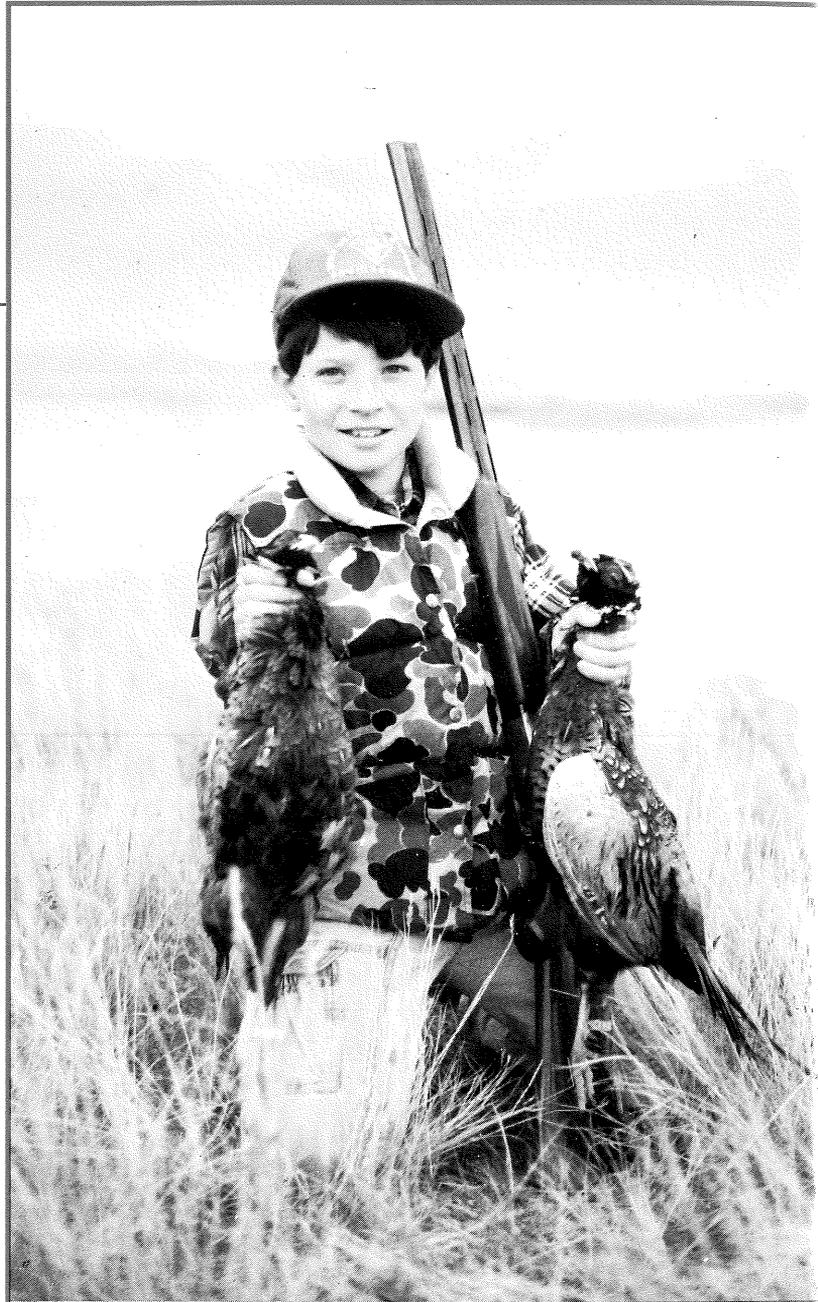
Thirty years ago, aspen was nearly worthless, providing neither good lumber nor firewood. Today, it's the basis of Minnesota's multimillion-dollar forest industry.

Once, a fisherman was thought to be crazy to return a big fish to the water. Now, anglers and fisheries managers who are concerned about "quality angling" realize catch-and-release must play a larger role in future fisheries management.

Years ago, when the state paid a bounty on predators, many hunters and even some officials believed killing wolves was the best way to manage for deer. In the years since, we've come to understand that it's necessary to protect habitat rather than destroy predators. If a single species is to prosper, land and life on it must prosper as a whole.

So, attitudes and opinions change. At times, even resource managers have failed to correctly anticipate trends and problems. They were left wanting for a good crystal ball. And there's every reason to believe that in the years ahead hindsight will again prove sharper than foresight.

But through research and planning, and by keeping an open line to the public, the DNR can anticipate trends and challenges as well as humanly possible. Then the department can devise the strategies and take the actions necessary to meet those challenges and provide for the needs of all Minnesotans.

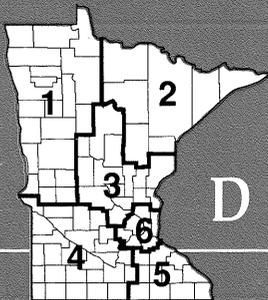


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The result will be the wiser use of resources, better protection of the environment, and a healthier home for future generations.



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